COMMUNITY-BASED TOURISM AND

THE COVID-19 PANDEMIC, EXPERIENCES FROM

SOUTHEAST ASIAN COUNTRIES

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Abstract: This study explores the impacts of the COVID-19 pandemic on community-based tourism (CBT) in Southeast Asia through a comprehensive bibliometric analysis. By employing bibliometric coupling and thematic analysis, this research maps the intellectual structure and dynamics of the field, identifying key trends and influential studies. The analysis includes 357 articles from the Scopus database, focusing on the period from 2020 to 2024. The study identifies four main research clusters: post-pandemic tourism recovery strategies, adaptive policy planning and technology, the impact of COVID-19 on CBT, and sustainable development during the pandemic. Key themes include the economic impact on small businesses, the role of digital technologies, community resilience, and sustainable practices. The research highlights significant collaboration among Southeast Asian countries, particularly Indonesia and Malaysia, in addressing the pandemic's effects on tourism. The findings also emphasize the need for long-term recovery strategies, the role of community leadership in crisis management, and the integration of health protocols in tourism activities.

Keywords. Community-based tourism (CBT), COVID-19 pandemic, Bibliometric analysis, Tourism recovery strategies, Southeast Asian

1.   Introduction

Community-based tourism (CBT) has emerged as a key tourism development tool in ASEAN countries over the past two decades, emphasizing a community-centered approach in its operation. It aims to protect and restore natural and cultural resources, and it involves capacity development of people in the communities as the heart of tourism management (Southeastasia, 2015). Notable examples of successful CBT initiatives in Southeast Asia include

the Mae Hongson province in Thailand, the Nam Ha Project in Laos, and the Lac village in Mai Chau district, Vietnam. These examples highlight how CBT not only caters to the needs of tourists but also empowers locals to manage tourism sustainably within their communities.

Moreover, the COVID-19 pandemic has significantly impacted tourism in Asia and the Pacific, accelerating trends such as digitalization and altering consumer preferences (The Asian Development Bank, 2022). This creates new opportunities for sustainable tourism development, which includes enhancing community engagement and inclusion.

Additionally, research studies such as those by Guild (2020), Hajer et al. (2015), and Hall (2019) have explored various aspects of sustainable tourism development in relation to the Sustainable Development Goals (SDGs). These studies offer insights into how sustainable tourism, including CBT, can contribute to broader developmental objectives, highlighting the importance of multi-stakeholder partnerships and critical analysis of tourism practices in the context of sustainability and post-COVID recovery.

Bibliometric analysis applies statistical methods to track qualitative and quantitative shifts in scientific research, profiling publications and identifying trends within a field (De Bakker et al., 2005). It also offers valuable insights for professionals evaluating scientific activity (Duque Oliva et al., 2006) and serves as a roadmap to understanding research on community tourism and the COVID-19 pandemic. This study utilizes the Scopus online database, which encompasses scientific literature from various disciplines, with the aim of providing a comprehensive overview of the impacts of the COVID-19 pandemic on CBT in Southeast Asia and offering lessons learned for future recovery and sustainable development strategies.

2.   Literature review

2.1. Community-based tourism

Community-based tourism (CBT) is a sustainable model that empowers local communities, promotes cultural heritage, and ensures equitable economic benefits (Manyara & Jones, 2007). The COVID-19 pandemic has significantly impacted tourism, prompting increased academic interest in its effects on CBT. Bibliometric analysis has become essential for mapping research trends, identifying key themes, and highlighting influential studies (Donthu et al., 2021).

CBT involves local communities in tourism planning and management, emphasizing local control, community participation, and equitable benefit distribution (Manyara & Jones, 2007). It aims to enhance socio-economic well-being, preserve cultural heritage, and promote sustainable development. Key research themes in CBT include community empowerment,

capacity building, sustainable practices, and the role of cultural heritage. The COVID-19 pandemic has significantly impacted CBT, with travel restrictions and lockdowns reducing tourist arrivals and revenues, highlighting the need for resilience and adaptation in tourism practices (Sigala, 2020).

2.2. Impacts of COVID-19 on CBT and research trends

COVID-19 has caused severe economic downturns in the community-based tourism (CBT) sector. Communities reliant on tourism have witnessed significant income declines as tourist numbers plummeted (Brouder et al., 2020). Job losses and reduced income have increased poverty and negatively impacted community cohesion. Vulnerable groups have been disproportionately affected, exacerbating social inequalities (Baum & Hai, 2020). Although the reduction in tourism has helped decrease pollution and allowed ecosystems to recover, it has also created difficulties in maintaining conservation activities due to the lack of tourism revenue (Gössling et al., 2021). These impacts not only highlight the vulnerability of CBT to unexpected events but also reveal weaknesses in the economic and social structures of tourism-dependent communities.

During the COVID-19 period, research has focused on the mandatory digital transformation due to travel restrictions. Communities have sought digital solutions to maintain connections with tourists, such as virtual tours and online experiences. Additionally, there has been an increase in studies on the impact of policy and crisis management on tourism communities, exploring how government support measures can help mitigate negative impacts and aid in economic and social recovery (UNWTO, 2021).

Recent research has concentrated on the resilience and adaptability of CBT, emphasizing income diversification and the application of digital technologies for virtual tourism (Cheer, 2021). During the COVID-19 period, health and safety measures have been highly regarded for their effectiveness in restoring tourist confidence, such as enhanced sanitation practices and vaccination (Sigala, 2020). Research trends also focus on sustainable tourism practices, environmental protection, and cultural preservation while ensuring economic viability (Hall et al., 2020). Digital transformation and the potential of digital technologies, such as online marketing and virtual reality tours, to enhance the accessibility of CBT destinations, are also important topics (Gretzel et al., 2020). Finally, policy and management frameworks that support the recovery and development of CBT, including funding mechanisms and international cooperation, are being analyzed to provide a foundation for sustainable future growth (Higgins-Desbiolles, 2020).

3. Research methodology

Bibliometric analysis quantitatively studies written publications, such as books or articles, using techniques like citation analysis, co-citation analysis, and keyword analysis to evaluate research fields' impact and development. It identifies patterns in academic literature, helping scholars understand research trends, influential authors, and collaborative networks. This method is crucial in uncovering research fronts and emerging themes, particularly in the context of CBT and the COVID-19 pandemic (Donthu et al., 2021).

The authors utilized bibliometric coupling and thematic analysis to provide an in-depth look into the knowledge structure of literature related to Community-Based Tourism (CBT) and the Covid-19 pandemic, examining research trends and proposing future research directions. Bibliometric coupling illustrates the similarity between studies based on the overlap in their bibliographic lists. Accordingly, a higher number of similar references between documents indicates greater similarity between the articles (Kessler, 1963). The authors then present a systematic overview of the literature (comprehensive citation references) within each cluster, visualizing the similarities in bibliographic coupling clusters (Van Eck & Waltman, 2010). This method has proven useful in various academic contexts, as it reveals core research areas by aggregating and highlighting large bibliometric datasets using total citations, annual citations, and updated articles. Moreover, it has been recently recommended as more productive and accurate compared to co-citation and co-word analysis in representing the research front, significant contemporary contributions to the field, and current thematic subjects (Boyack & Klavans, 2010).

As previous studies suggested, combining bibliometric coupling with VOSViewer and thematic analysis enhances the ability to examine both the intellectual structure and dynamics of a research field based on quantitative bibliometric indicators and systematic overviews within each cluster (Sharma et al., 2022). The authors employed bibliometric coupling analysis and meta-search techniques to gain further insights into the knowledge structure of CBT and Covid-19 literature and to explore the development of future research topics.

Bibliometric analysis highlights several themes: economic impacts, resilience and recovery strategies, digital adaptation, and sustainable practices (Gössling et al., 2021). Influential studies often provide case studies from various regions, offering insights into local responses to the pandemic. Collaborative networks within the research community are identified, revealing key researchers and institutions. The analysis also highlights gaps in the literature, such as the need for more research on long-term recovery strategies, community leadership in crisis management, and integrating health protocols in tourism practices (Okafor et al., 2021).

Keywords for linked searches were selected using Boolean operators of TI: "TITLE" and TS: "TITLE-ABSTRACT-KEYWORD," and then combined. The combined use of these search fields offers several important benefits, including: increasing the accuracy of search results, ensuring comprehensiveness and coverage, enhancing the ability to find relevant studies and being more effective in identifying important documents. For the concept of community-based tourism, relevant keywords collected included: Community-based tourism (Goodwin& Santilli., 2009), Sustainable tourism (Bramwell& Lane, 1993), Ecotourism (Weaver,, 2001), Responsible tourism (Goodwin, 2011), Participatory tourism (Reid, 2003), Local tourism (Ashleyet al., 2000), Pro-poor tourism (Mitchell& Ashley, 2010), Inclusive tourism (Scheyvens & Biddulph, 2018), Grassroots tourism (Zapata et al., 2011), Community-driven tourism (Manyara & Jones, 2007), Community-involved tourism (Hall, & Richards, 2000). Additionally, keywords related to COVID-19, including COVID-19, SARS-CoV-2, Novel coronavirus, 2019-nCoV, Coronavirus pandemic, were identified for more accurate search results. The extracted keywords were used in the following two queries:

TI = community-based OR tourism OR COVID-19

TS = ((community-based AND tourism) OR (community-driven AND tourism) OR (community-involved AND tourism) OR (participatory AND tourism) OR (pro-poor AND tourism) OR (alternative AND tourism) OR (grassroots AND tourism) OR (inclusive AND tourism) OR (local AND tourism) OR (sustainable AND tourism) OR (ecotourism) OR (responsible AND tourism)) AND ((covid AND 19) OR COVID-19 OR sars-cov-2 OR (novel AND coronavirus) OR 2019-ncov OR (coronavirus AND pandemic))

Using these two search queries, this combination resulted in 1983 peer-reviewed articles. These documents were published from 2020 to 2024 in the SCOPUS database. The specific query progression is depicted in table 1.

Table 1: Systematic review methodology

STEP 1 – DATABASE REVIEW	
(SCOPUS - the storage source of a huge number of materials published in the accepted journals in the world (Falagas et al., 2008; Kraus et al., 2020)	
Key word identification: using Boolean operators of TI: "TITLE" and TS: "TITLE-ABSTRACT-KEYWORD → 1983 articles	**Narrowing down the found results:** languages (English), material types (Article, book chapter, conference paper), Country/territory (Southeast Asian countries) → 357 articles
STEP 2 – DATABASE EVALUATION	

Read the titles, the abstract and the whole articles: No articles have duplicate content and authors, Result: 357 articles	**Manual cross-checking** (Read the whole article → 357 articles with 1251 authors from 56 countries published in 201 journals, book chapters and conference	**Key word normalization** (1476 key words → 648 key words)	**Document cross-checking** (Method of "back-and-forth snow throwing": https://www.connectedpapers.com)

STEP 3 - BIBLIOMETRIC ANALYSIS
(357 documents by 1251 authors from 56 countries published on 201 journals)

Database systematization (the average publication year, in each country)	**Similarity analysis through VOS viewer software** (co-author, co-occurrence, citations, co-cited, collected-directory)

STEP 4 - LINKED DATA ANALYSIS
VOS viewer result analysis in accordance with the criteria creating specific links among the articles (Systemizing all the articles in one cluster, highlighting the mainly-discussed themes and the principal links among those documents and the best-fit research gaps)

Source: Adapted from (Denyer & Tranfield, 2009; Kraus et al., 2020; Tranfield et al., 2003)

4.   Results and Discussion

4.1   Publication sources

Table 2 presents an overview of the primary sources of publications in the research field. It lists the top-ranking publishing sources, the number of publications, links, total link strength, citations, and the average publication year. This summary provides insights into the most influential and frequently referenced journals and conference proceedings, highlighting their contributions to the body of research.

Table 2: Primary publication sources

Publishing source	N. Puclications	Links	Total link strength	Citations	Avg. pub. year
IOP Conference Series: Earth and Environmental Science	28	33	96	32	2021.9
Sustainability (Switzerland)	23	45	403	492	2022.0
AIP Conference Proceedings	15	10	18	3	2023.1
E3S Web of Conferences	15	25	58	13	2021.5
Geojournal of Tourism and Geosites	7	35	122	17	2021.7
International Journal of Sustainable Development and Planning	6	20	51	9	2022.8
Cogent Social Sciences	5	37	196	45	2022.4
Journal of Environmental Management and Tourism	5	20	45	6	2022.4
Current Issues in Tourism	4	5	8	321	2021.8
Heliyon	4	26	89	69	2021.5
Journal of Tourism Futures	4	23	40	19	2023.0
Contributions to Management Science	3	4	4	2	2022.3
Journal of Tourism and Development	3	12	16	2	2022.7
Marine Policy	3	17	31	24	2022.3
Sage Open	3	22	45	13	2022.3
Tourism Geographies	3	9	22	121	2020.7
International Journal of Environmental Research and Public Health	2	13	20	81	2021.5
Journal of Ecotourism	2	22	85	29	2023.0

Journal of Sustainable Tourism	2	18	38	27	2023.0
Perspectives on Asian Tourism	2	19	40	0	2022.0
Research in Globalization	2	31	117	26	2022.5
Tourism and Hospitality Research	2	24	51	17	2022.0
Tourism Economics	2	24	58	1	2024.0
Tourism Management Perspectives	2	21	60	18	2022.0
Tourism Review	2	14	25	524	2022.0

Source: authors based on VOS Viewer software, 2024

The dataset on publication sources related to the impact of COVID-19 on community tourism in Southeast Asian countries reveals significant differences between journals and conference proceedings. The journal "Sustainability (Switzerland)" leads with 23 publications, 45 links, and a total link strength of 403, along with 492 citations, indicating a substantial influence in this field. Meanwhile, "Current Issues in Tourism" and "Tourism Review" also exhibit high citation counts of 321 and 524, respectively, despite having fewer publications, suggesting that their research is highly valued and frequently referenced. Notably, the journal "GeoJournal of Tourism and Geosites" has 7 publications with 35 links and a total link strength of 122, highlighting its significant interest within the research community. Journals such as "Journal of Sustainable Tourism," "Tourism Geographies," and "Heliyon" are also highly regarded, with notable impact factors and citation counts, despite having fewer publications.

Conference proceedings such as "IOP Conference Series: Earth and Environmental Science" and "E3S Web of Conferences" have substantial numbers of links, 33 and 25, respectively, but lower citation counts of 32 and 13, indicating a lesser impact compared to leading journals. "AIP Conference Proceedings" has 15 publications but only 3 citations, underscoring the disparity in impact among publication sources. Overall, higher journals like "Sustainability (Switzerland)" and "Current Issues in Tourism" tend to have higher citation counts and link strengths, demonstrating superior influence and research quality compared to conference proceedings.

This underscores the research community's preference for prestigious and impactful journals when publishing studies on the impact of COVID-19 on community tourism. Publications in leading journals not only garner widespread attention but also exert profound influence, shaping policies and recovery strategies in the tourism sector amid the pandemic. In contrast, although conference proceedings may provide valuable and up-to-date information, they typically do not achieve the same level of impact as articles in top-tier journals.

4.2   Research collaboration network

Figure 1 illustrates the research collaboration network, depicting the connections between different researchers and institutions. This diagram highlights the collaborative efforts within the research community, showcasing how various entities work together, share knowledge, and contribute to the development of the field.
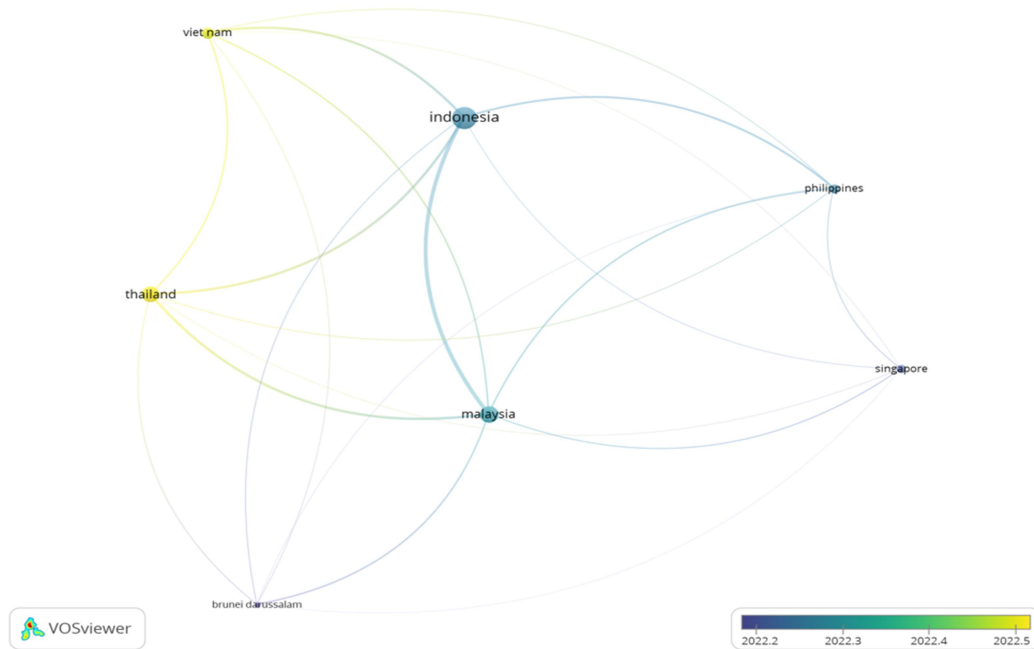
Figure 1: Research collaboration network

Source: authors based on VOS Viewer software, 2024

The country collaboration map illustrates the connections and collaborative intensity between countries in research related to community-based tourism and COVID-19 impacts. Indonesia (175 articles) and Malaysia (78 articles) are central, indicating they are key players in research collaborations on this topic. Vietnam (27 articles) shows strong collaborations with Indonesia and Malaysia. Thailand (66 articles) has significant connections with Vietnam, Indonesia, and Malaysia, indicating active regional cooperation. Philippines (15 articles) and Singapore (14 articles) exhibit moderate connections, especially with Indonesia and Malaysia. Brunei Darussalam (4 articles) has fewer connections, mainly linked to Malaysia. It can be seen that the number of studies in Indonesia surpasses that of other countries in the region. In fact, Indonesia is a country with many areas that have the potential for developing community-based tourism, such as Bali, Yogyakarta, Lombok, Komodo National Park, Sumatra, Raja

Ampat, Bandung, Bromo Tengger Semeru National Park, Ubud…. Additionally, the government and research organizations have made significant investments in the research and development of community-based tourism to promote sustainable economic development, especially in the context of the COVID-19 pandemic.

The color gradient from blue (earlier studies) to yellow (recent studies) suggests evolving collaborations, with recent studies showing increased regional cooperation. The map highlights a concentration of research efforts in Southeast Asia, reflecting regional collaboration in addressing COVID-19 impacts on tourism. This map provides a clear overview of the research network and collaborations among Southeast Asian countries, emphasizing their collective efforts in studying the effects of COVID-19 on tourism.
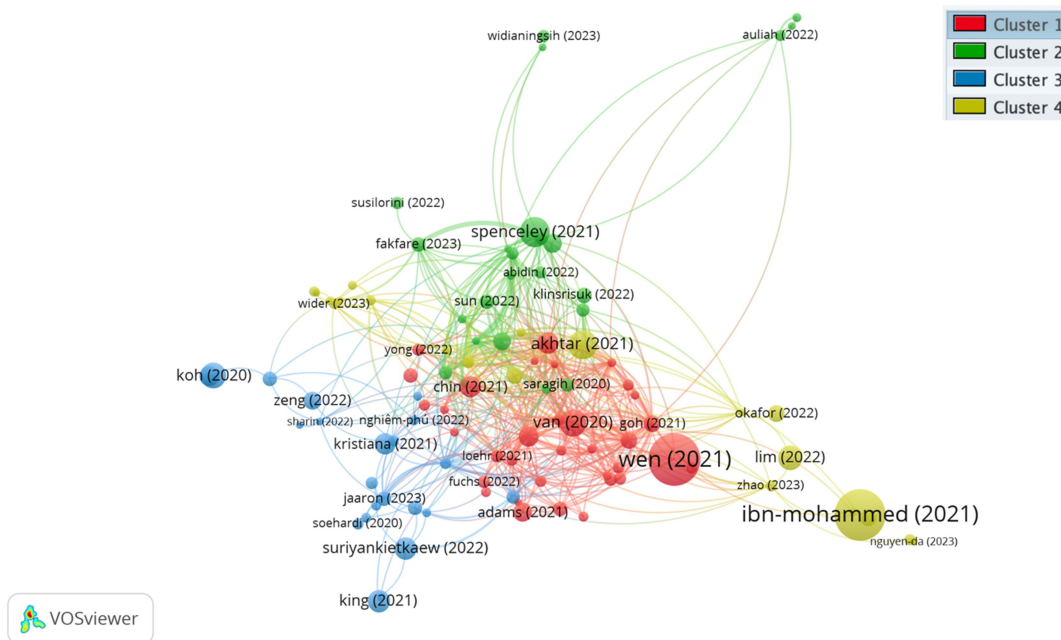
4.3   Network diagram of research links

From the 357 articles in the sample, the author selected those with a minimum of three citations for analysis. The bibliometric coupling analysis results showed that 18 articles with a total link strength of 0 were excluded because they were not linked to any other articles, while four clusters were formed from the remaining 101 articles. Smart local moving algorithm methods were used to explore the clusters (Van Eck & Waltman, 2010). Figure 2 presents a network diagram illustrating the connections between various research studies. This visual representation highlights the relationships and interactions among different research themes, showcasing how various studies are interconnected through shared keywords, citations, and thematic clusters.

The network diagram depicts authors and articles related to community tourism and COVID-19 in Southeast Asia. Nodes represent authors, while the connecting lines signify collaborative relationships or mutual citations. The size of each node reflects the frequency or influence of an author, with larger nodes indicating more influential authors (Kirby, A., 2023). The colors of nodes and connecting lines denote different clusters or groups within the network.

Several distinct clusters can be identified within the network. The red cluster includes authors such as Wen (2021), Van (2020), and Akhtar (2021). This cluster appears to be central, containing many influential authors with strong collaborations. Authors in this cluster frequently cite each other and are closely linked in their research on community tourism during the COVID-19 pandemic, with numerous dense connections indicating high interaction and cooperation.

The green cluster comprises authors like Spenceley (2021), Fakfare (2023), and Widianingsih (2023), who also have strong collaborative relationships and frequently cite each other. The presence of studies from 2022 and 2023 suggests that this cluster includes recent research and is experiencing robust growth.

Figure 2: Network diagram of research links

Source: authors based on VOS Viewer software, 2024

The blue cluster includes authors such as Koh (2020), Zeng (2022), and Kristiana (2021). This cluster focuses on initial studies regarding the impact of COVID-19 on community tourism. Authors in this cluster tend to collaborate with each other and cite early research from the beginning stages of the pandemic.

The yellow cluster, with key contributors like Ibn-Mohammed (2021), Lim (2022), and Okafor (2022), seems to encompass studies concentrating on the economic aspects and sustainable development of community tourism during the pandemic.

Several notable authors stand out in the diagram, including Wen (2021), Ibn-Mohammed (2021), and Spenceley (2021). These authors have a significant influence and are frequently cited in other studies, indicating their substantial impact on the scientific community and their crucial role in developing theories and practices related to community tourism in the context of COVID-19. Wen's research focuses on tourism recovery strategies post-pandemic and adaptation measures for tourism communities. Ibn-Mohammed's studies often address the economic and sustainability aspects of community tourism during the pandemic. Spenceley's research frequently centers on policies and support measures for tourism communities facing COVID-19-related challenges.

The diagram also shows a temporal distribution of studies, with representation from the years 2020, 2021, 2022, and 2023. This indicates continuous development in this research field, with new contributions from various authors each year. Recent research clusters (2022-2023) highlight emerging trends and potential future research directions.

In conclusion, the network diagram of scientific articles on community tourism and COVID-19 in Southeast Asia serves as a valuable tool to understand the collaborative structure and influence within this field. The clusters and connections among authors reflect the ongoing development of this research area, with significant contributions from prominent authors. Analyzing this diagram helps identify major research trends and influential authors, guiding future research in community tourism and COVID-19.

4.4   Comprehensive analysis of CBT and COVID-19 research clusters

The table 3 categorizes and summarizes the primary research themes related to CBT and the impacts of the COVID-19 pandemic. It highlights the focus areas, key keywords, the number of articles, total links, citations, and the average publication year for each cluster.

The differences between the clusters in terms of metrics clearly highlight the varying roles and importance of each research topic. Cluster 1 has the highest number of articles with 34 publications, the highest total number of links at 478, and the highest total number of citations at 1008, emphasizing significant interest in tourism recovery strategies post-pandemic. Cluster 2, with 24 articles and the lowest total number of citations at 361, has the most recent average publication year of 2022, focusing on adaptive policies and technology. Cluster 3 has fewer links and citations but remains important with 22 articles, 141 links, and 421 citations, reflecting the role of community in tourism management. Cluster 4, although having the fewest articles with 21 publications, has the second-highest total number of citations at 835, concentrating on scientific analysis and sustainable development of community-based tourism during the pandemic, with an average publication year of 2021.9.

Table 3. The main research themes on CBT and the COVID-19 pandemic

Cluster	Focus	Main keywords	Number of articles	Total number of links	Total number of citations	Avg. pub. year
1: Tourism recovery strategies post-pandemic	The negative impacts of the COVID-19	COVID-19 pandemic, Tourism industry,	34	478	1008	2021.9

and adaptation measures for tourism communities	pandemic on the tourism industry, particularly small businesses, and the significance of innovation, digitalizati on, and resilience in response to the pandemic.	Small businesses, Digital technologies, Community-based tourism, Resilience, Sustainabilit y, Local engagement.				
2: Adaptive policy planning and technology in post-pandemic tourism	The importance of adaptive policies, sustainable tourism strategies, community involvemen t, and technologic al advanceme nts in reviving tourism sectors post-pandemic.	COVID-19 pandemic, Sustainabilit y, Economic impact, Community involvement Resilience, Adaptive policies, Technology adoption.	24	255	361	2022

| 3: The impact of COVID-19 on community-based tourism | The role of community collaboration, strong leadership, and governance in achieving sustainable and resilient tourism, particularly in the context of crises like COVID-19. | Community collaboration, Tourism management, Sustainability, Local knowledge, Crisis adaptation, Leadership, Governance. | 22 | 141 | 421 | 2021.5 |
| 4: Sustainable development of community-based tourism during the pandemic | The scientific analysis of various factors affecting tourism, including cultural and economic factors, the impact of COVID-19, and the role of technology. | COVID-19 pandemic, Tourism development, Community-based tourism, Economic impact, Tourism industry recovery, Digital tourism | 21 | 166 | 835 | 2021.9 |

Source: authors, 2024

The results of the meta-analysis in Table 3 show that the research focuses on four main themes:

Cluster 1: Tourism recovery strategies post-pandemic and adaptation measures for tourism communities

The COVID-19 pandemic has had significant negative impacts across various sectors within the tourism industry, including severe declines in passenger numbers. Small businesses in Malaysia's tourism and hospitality industry faced decreased customer demand and financial instability (Abhari et al., 2022). The Indonesian tourism sector also experienced significant disruptions, affecting both community-based tourism and the broader tourism industry (Noorashid & Chin, 2021).

Innovation and digitalization have emerged as crucial factors for the survival and transformation of tourism businesses during the pandemic. Small tourism enterprises leveraged creativity to adapt to new market conditions (Bhaskara et al., 2023). Digital solutions played a key role in sustaining operations and engaging customers in the wine tourism sector in Italy (Festa et al., 2023). Small tourism businesses in Thailand also adopted digital technologies to remain resilient (Fuchs, 2022). Resilience and adaptation have been central themes in the response to the pandemic. Small tourism businesses in Thailand and rural tourism enterprises in Indonesia adapted by embracing digital technologies, diversifying product offerings, and focusing on local markets (Fuchs, 2022; Sari et al., 2022).

Community-based tourism in Brunei and sustainable tourism in Bali demonstrated resilience through local engagement, cultural preservation, and sustainable practices (Noorashid & Chin, 2021; Choe & Mahyuni, 2023). The pandemic has underscored the need for sustainable and inclusive tourism development. Studies emphasize the importance of involving local communities, promoting environmental stewardship, and adopting sustainable tourism practices. Spiritual tourism in Bali and community-based tourism in Brunei are examples of how inclusivity and sustainability can be integrated into tourism recovery strategies (Choe & Mahyuni, 2023; Noorashid & Chin, 2021). Effective post-pandemic recovery strategies have been crucial for the revival of the tourism industry. In Vietnam, restoration strategies included infrastructure development, marketing campaigns, and policies promoting domestic tourism (Vu et al., 2022). Destination management practices in Bali highlighted the importance of health protocols and community involvement for successful recovery (Subadra, 2021). The emphasis on justice, equity, and sustainability in rethinking tourism futures also points to the need for a more equitable and resilient tourism sector (Rastegar et al., 2023).

Culinary tourism and rural tourism sectors have also shown adaptability and resilience during the pandemic. In Indonesia, micro and small street food vendors implemented health measures and leveraged digital platforms to sustain their businesses (Gaffar et al., 2022). Rural

tourism enterprises adapted by diversifying activities and engaging with local communities to ensure sustainability and resilience during the pandemic (Sari et al., 2022).

The resilience of community-based tourism has been a recurring theme, with various studies highlighting the importance of local engagement and community involvement. Community-based tourism in Brunei demonstrated resilience by adapting to new health protocols and promoting local cultural experiences (Noorashid & Chin, 2021). Similarly, rural tourism in Indonesia emphasized community support and involvement in sustainable tourism practices (Sari et al., 2022). Long-term strategies for sustainable tourism development have been emphasized as essential for post-pandemic recovery. Studies on spiritual tourism in Bali and community-based tourism in Brunei suggest that sustainable practices and inclusivity are critical for long-term success (Choe & Mahyuni, 2023; Noorashid & Chin, 2021). These strategies include the promotion of local cultures, environmental conservation, and community involvement in tourism planning and management.

Cluster 2: Adaptive policy planning and technology in post-pandemic tourism

The COVID-19 pandemic has substantially disrupted tourism sectors globally, impacting economic development, local communities, and urban resilience. Efforts to revive tourism often involve leveraging existing resources and adapting to new health and safety measures to attract tourists (Widianingsih et al., 2023; Thong et al., 2024; Miftah et al., 2023; Huynh et al., 2021). The importance of adaptive policy planning and sustainable tourism strategies is underscored, with many regions adopting new policies to address changing tourist behaviors and expectations in the post-COVID era, focusing on sustainability, safety, and resilience (Fakfare & Wattanacharoensil, 2022; Klinsrisuk & Pechdin, 2022; Samdin et al., 2022).

Community involvement and social capital have proven essential in managing tourism during the pandemic, with strong local networks and community participation helping maintain tourism activities and ensure resilience against disruptions (Auliah et al., 2022; Dewi et al., 2021; Prayitno et al., 2022).

The pandemic has accelerated the adoption of technology in tourism, including virtual reality and mobile applications, to provide safer and more engaging experiences for tourists. These innovations are crucial in maintaining interest and engagement in tourism destinations (Wibisono et al., 2023; Saragih & Suyoto, 2020). Building trust and addressing perceived risks have become critical for attracting tourists in the post-pandemic era. Transparent communication and effective risk management strategies are necessary to reassure tourists and encourage travel (Sun et al., 2022; Abidin et al., 2022; Sarfraz et al., 2022).

These synthesized conclusions highlight shared challenges and strategies across different regions and contexts, demonstrating the global impact of COVID-19 on tourism and the various adaptive measures being implemented to foster recovery and sustainability in the industry.

Cluster 3: The impact of COVID-19 on community-based tourism

The critical role of community collaboration in tourism management is emphasized by Pongsakornrungsilp et al. (2022), who advocate for co-creating tourism strategies with local communities to enhance resilience and sustainability in Krabi, Thailand. Sann et al. (2023) underscore the importance of local knowledge and community cooperation in crisis adaptation within Thai community-based tourism. Priatmoko et al. (2023) [58] highlight the necessity of understanding diverse stakeholder needs and integrating sustainable practices in rural tourism businesses. Suriyankietkaew et al. (2022) argue that sustainable leadership practices are essential for the success of community-based social enterprises post-pandemic. The effectiveness of leveraging local knowledge and maintaining flexibility in tourism crisis adaptation is demonstrated by Sann et al. (2023), showing how Thai communities utilized these assets during the pandemic. Jaaron et al. (2023) discuss the application of systems thinking to facilitate "double loop" learning, enhancing the flexibility and resilience of tourism strategies.

Strong leadership and governance are pivotal in steering community-based enterprises and the tourism sector towards sustainable futures. Suriyankietkaew et al. (2022) highlight the necessity of sustainability and resilience competencies among SME leaders. Dasan et al. (2022) emphasize the importance of robust local governance for overcoming post-COVID-19 challenges in community-based ecotourism in Sabah. Integrated and collaborative approaches are recommended for tourism recovery and long-term sustainability, as presented by Purnomo et al. (2021) with the Penta-Helix approach, which involves collaboration among government, academia, industry, media, and the community. Jaaron et al. (2023) advocate for systems thinking as an effective method for enhancing crisis response strategies and achieving long-term sustainability in tourism.

Implementing public health and safety measures is critical in shaping tourism strategies and gaining local residents' support. Nghiêm-Phú and Phạm (2022) reveal that effective health measures are necessary for gaining local residents' support for reopening inbound tourism in Vietnam, while Tantrakarnapa et al. (2022) emphasize the importance of public health measures and community awareness in controlling the spread of COVID-19 in Thailand.

Cluster 4: Sustainable development of community-based tourism during the pandemic

This document examines the multifaceted influences on tourism in Southeast Asia through rigorous scientific analysis. Cultural and economic dimensions significantly shape tourism dynamics. Specifically, cultural distance enhances international tourism arrivals in ASEAN countries by offering novel and adventurous experiences (Heriqbaldi et al., 2023). Economic policies and uncertainties during the COVID-19 pandemic have drastically curtailed tourism flows, underscoring the necessity for stable policies to rejuvenate the sector (Zhao et al., 2023). Moreover, migration and linguistic networks substantially influence tourism, with

countries hosting larger migrant populations and sharing languages experiencing higher tourism flows (Okafor et al., 2022).

The impact of COVID-19 on tourism is profound, with predictive models using deep learning assisting in strategic recovery planning (Nguyen-Da et al., 2023). The pandemic led to a marked reduction in water consumption in Phuket, indicative of decreased tourism activities (Changklom et al., 2022). Socio-economic assessments of community-based tourism in Surin Province, Thailand, reveal significant adverse effects on local economies and livelihoods, highlighting the vulnerability of tourism-dependent communities (Kungwansupaphan, 2021).

In Thailand, community-based tourism development faces challenges such as inadequate infrastructure and limited community participation, despite efforts to empower local communities (Ditta-Apichai et al., 2024). Technological advancements in tourism are evident through bibliometric analyses identifying trends in digital tourism, including virtual tourism, smart tourism, and big data (Wider et al., 2023). Additionally, machine learning forecasts for halal tourism demand offer precise predictions for strategic business planning (Sulong et al., 2023).

4.5   Analysis of research keywords

Keyword normalization involves merging variations of keywords into a single standard form, which helps to avoid duplication and ensures that related terms are accurately identified and analyzed. To ensure representativeness, each keyword must appear at least five times. Out of 648 normalized keywords, 59 keywords meet this threshold. Figure 3 displays a network diagram of research keywords, highlighting the interconnections between the most frequently used terms in the field. This visualization demonstrates how different keywords are related, providing insights into the primary focus areas and trends within the research community.

The keyword analysis diagram in this study provides a comprehensive overview of trends and relationships between concepts related to tourism and the COVID-19 pandemic. Keywords are represented as an interconnected network, with colors indicating temporal changes from 2021 to 2022. Among the keywords, "community-based tourism" stands out, being centrally positioned and strongly linked with numerous other keywords such as "pandemic," "sustainable development," and "resilience." This suggests that community-based tourism has become a significant research topic in the context of the COVID-19 pandemic. Community-based tourism not only brings direct economic benefits to local communities but also helps preserve and promote indigenous cultural values. By leveraging local resources and culture, community-based tourism can enhance social capital and improve community resilience in the face of disruptions like the COVID-19 pandemic.
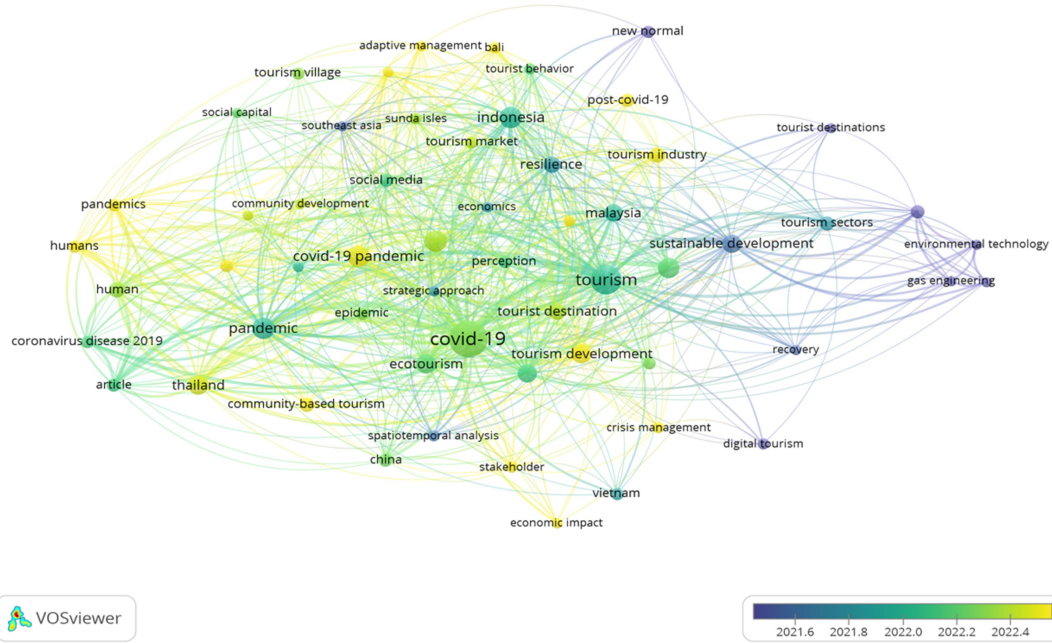
Figure 3: Network diagram of research keywords

Source: authors based on VOS Viewer software, 2024

The temporal trend in the diagram indicates that in 2021, keywords like "covid-19 pandemic," "pandemic," and "coronavirus disease 2019" were prevalent, reflecting a research focus on the pandemic's impact. Topics related to public health and human aspects, such as "human" and "epidemic," were also of interest, highlighting the emphasis on health and public health aspects in the context of tourism. By 2022, keywords related to "sustainable development," "resilience," and "recovery" gained prominence. This shift indicates a transition from studying the impact of the pandemic to seeking sustainable solutions and recovery strategies. Keywords like "new normal," "post-covid-19," and "digital tourism" also appeared, indicating changes in tourist behavior and new approaches after the pandemic. In this context, community-based tourism emerged as a viable and increasingly researched option, linking with concepts such as "social capital" and "community development" to emphasize the importance of enhancing social capital and community development through sustainable tourism.

The relationships between keywords in the diagram also indicate an interest in various aspects of tourism. For instance, "tourism development" and "sustainable development" have a strong relationship, suggesting that tourism development and sustainable development are being researched concurrently. The linkage between "tourist behavior" and "social media"

highlights the importance of understanding tourist behavior and the role of social media in the tourism industry. Countries like Indonesia, Malaysia, and Vietnam also appear in the diagram, indicating an interest in tourism research in the Southeast Asian region. This is particularly important when considering recovery and sustainable tourism development strategies in this area.

The keyword analysis diagram not only opens new research avenues but also emphasizes the importance of applying sustainable methods in tourism to overcome challenges and foster future development. Applying sustainable methods not only helps the tourism industry recover post-pandemic but also ensures more sustainable and inclusive development for local communities. These studies and analyses will provide a crucial foundation for developing appropriate and effective tourism development strategies in the new context.

5.   Conclusion

The research on community-based tourism and the impacts of the COVID-19 pandemic in Southeast Asia has provided valuable insights into the collaborative structure and influence within this field. Utilizing VOSviewer for network analysis, we have gained a comprehensive understanding of the collaborative relationships and influence among authors in community-based tourism and COVID-19. The network diagram not only illustrates these collaborative relationships but also highlights the influence of individual authors, represented by node size and different colors indicating distinct research clusters.

Through analysis, four major research clusters were identified. The red cluster, including authors such as Wen (2021), Van (2020), and Akhtar (2021), focuses on tourism recovery strategies post-pandemic and adaptation measures for tourism communities. The green cluster, with authors like Spenceley (2021), Fakfare (2023), and Widianingsih (2023), encompasses recent studies experiencing robust growth. The blue cluster, featuring authors such as Koh (2020), Zeng (2022), and Kristiana (2021), concentrates on early studies on the impact of COVID-19 on community-based tourism. Finally, the yellow cluster, with key contributors like Ibn-Mohammed (2021), Lim (2022), and Okafor (2022), focuses on the economic aspects and sustainable development of community-based tourism during the pandemic.

The country collaboration map illustrates the connections and collaborative intensity between countries in research related to community-based tourism and COVID-19 impacts. Indonesia and Malaysia play central roles, indicating their importance in research collaborations on this topic. Vietnam, Thailand, the Philippines, and Singapore also show significant collaboration, particularly with Indonesia and Malaysia, highlighting active regional cooperation in researching the impacts of COVID-19 on tourism.

The keyword analysis provides a comprehensive overview of trends and relationships between concepts related to tourism and the COVID-19 pandemic. Community-based tourism stands out as a significant research topic during the pandemic, bringing direct economic benefits to local communities and helping preserve and promote indigenous cultural values. The trend from 2021 to 2022 indicates a shift from studying the pandemic's impact to seeking sustainable solutions and recovery strategies. Keywords such as "sustainable development," "resilience," and "recovery" have gained prominence, reflecting this transition.

In conclusion, the network diagram of scientific articles on community-based tourism and COVID-19 in Southeast Asia serves as a valuable tool for understanding the collaborative structure and influence within this research field. The identified clusters and connections among authors reflect the ongoing development and significant contributions in this area. This analysis helps identify major research trends and influential authors, guiding future research in community-based tourism and COVID-19. Regional collaboration and sustainable approaches not only aid in the post-pandemic recovery of the tourism industry but also ensure more sustainable and inclusive development for local communities. However, this study has only utilized the SCOPUS database. Adding information from various other sources will enable the research to explore more aspects and perspectives in the future.

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